

**State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work**

Farm name: TURNER, DAVID R. & SANDRA Operator Well No.: HIRAM LYNCH 112

LOCATION: Elevation: 1,295' Quadrangle: WOLF SUMMIT 7.5'

District: TEN MILE County: HARRISON
Latitude: 5,070 Feet south of 39 Deg 17 Min 30 Sec.
Longitude: 11,010 Feet west of 80 Deg 27 Min 30 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Tristan Jenkins				
Date Permit Issued:	07/30/2012				
Date Well Work Commenced:	08/02/2012				
Date Well Work Completed:	08/07/2012				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable Rig		7"	611'	611'	existing
Total vertical Depth (ft):	3050'				
Total Measured Depth (ft):	3050'				
Fresh Water Depth (ft):		4 1/2"	2994.95'	2994.95'	existing
Salt Water Depth (ft):					
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	NA				
Void(s) encountered (Y/N) depth(s):					

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OPEN FLOW DATA

* Waterflood Injector

**WV Department of
Environmental Protection**

Producing formation	Fifth Sand	Pay zone depth (ft)	2906'-2914'
Gas: Initial open flow	* MCF/d	Oil: Initial open flow	* Bbl/d
Final open flow	* MCF/d	Final open flow	* Bbl/d
Time of open flow between initial and final tests		* Hours	
Static rock pressure	* psig (surface pressure)	after	* Hours
Second producing formation		Pay zone depth (ft)	
Gas: Initial open flow	* MCF/d	Oil: Initial open flow	* Bbl/d
Final open flow	* MCF/d	Final open flow	* Bbl/d
Time of open flow between initial and final tests		* Hours	
Static rock pressure	* psig (surface pressure)	after	* Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature


Date

Were core samples taken? No

Were cuttings caught during drilling? No

Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment : Treated perfs 2906'-2914' w/ 300 gals 15% HCL, 171 bbls cross linked gel, & 5,200# 20/40 sand.

Well Log : See original WR35 report

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work

Farm name: ELSEY, KENNETH D. Operator Well No.: BEESON H. BROWN 14
LOCATION: Elevation: 1,134' Quadrangle: WOLF SUMMIT 7.5'
District: TEN MILE County: HARRISON
Latitude: 5,950 Feet south of 39 Deg 20 Min 0 Sec.
Longitude: 11,760 Feet west of 80 Deg 25 Min 0 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Tristan Jenkins				
Date Permit Issued:	06/18/2012				
Date Well Work Commenced:	09/14/2012				
Date Well Work Completed:	09/21/2012				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable Rig		8 5/8"	1215'	1215'	existing
Total vertical Depth (ft):	4798'				
Total Measured Depth (ft):		5 1/2"	4798'	4798'	existing
Fresh Water Depth (ft):					
Salt Water Depth (ft):					
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	314'-320'				
Void(s) encountered (Y/N) depth(s):	NONE				

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Office of Oil & Gas
DEC 10 2012

OPEN FLOW DATA

* Waterflood Producer

WV Department of
Environmental Protection

Producing formation Fifth Sand Pay zone depth (ft) 2698'-2708'
Gas: Initial open flow * MCF/d Oil: Initial open flow * Bbl/d
Final open flow * MCF/d Final open flow * Bbl/d
Time of open flow between initial and final tests * Hours
Static rock pressure * psig (surface pressure) after * Hours
Second producing formation Pay zone depth (ft)
Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
Final open flow MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests Hours
Static rock pressure psig (surface pressure) after Hours

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Be Kldm 11/19/12
Signature Date

✓

Were core samples taken? No

Were cuttings caught during drilling? No

Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment : Treated perfs 2690'-2696', 2698'-2708' w/ 500 gals 15% HCL, 246 bbls cross linked gel, and 5000# 20/40 sand.

Well Log : See original WR35 report

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work

Farm name: WAYNE, ROBERTA B. Operator Well No.: ANTHONY LOVEALL 9

LOCATION: Elevation: 1,058' Quadrangle: PINE GROVE 7.5'
District: GREEN County: WETZEL
Latitude: 11,970 Feet south of 39 Deg 32 Min 30 Sec.
Longitude: 5,375 Feet west of 80 Deg 40 Min 0 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Derek Haught				
Date Permit Issued:	09/18/2012				
Date Well Work Commenced:	10/19/2012				
Date Well Work Completed:	11/07/2012				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable Rig		7"	1030'	1030'	255 sks
Total vertical Depth (ft):	3110'				
Total Measured Depth (ft):	3110'				
Fresh Water Depth (ft):	210', 650'	4 1/2"	3071.2'	3071.2'	225 sks
Salt Water Depth (ft):	2150'				
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	793'-800'				
Void(s) encountered (Y/N) depth(s):	NONE				

OPEN FLOW DATA * Waterflood Injector

Producing formation Gordon Pay zone depth (ft) 2886'-2901'
2915'-2915'

Gas: Initial open flow * MCF/d Oil: Initial open flow * Bbl/d
Final open flow * MCF/d Final open flow * Bbl/d
Time of open flow between initial and final tests * Hours
Static rock pressure * psig (surface pressure) after * Hours

Second producing formation Pay zone depth (ft)
Gas: Initial open flow * MCF/d Oil: Initial open flow * Bbl/d
Final open flow * MCF/d Final open flow * Bbl/d
Time of open flow between initial and final tests * Hours
Static rock pressure * psig (surface pressure) after * Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

[Signature]
Signature

1/5/13
Date

Were core samples taken? No

Were cuttings caught during drilling? No

Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment : Treated perfs 2886'-2901' & 2915'-2919', 250 gals 15% HCL,
326 bbls cross linked gel, and 20,000# 20/40 sand.

Well Log : All depths are measured relative to KB (8' AGL).

Shale w/ sand streaks	0	-	793
Coal	793	-	800
Shale w/ sand streaks	800	-	802
Sand	802	-	830
shale	830	-	916
sand	916	-	946
shale	946	-	1016
sand	1016	-	1033
shale	1033	-	1322
sand	1322	-	1354
shale	1354	-	1416
sand	1416	-	1446
shale	1446	-	1458
sand	1458	-	1524
shale	1524	-	1548
sand	1548	-	1572
shale	1572	-	1820
sand	1820	-	1850
shale	1850	-	1994
sand	1994	-	2008
shale	2008	-	2020
sand	2020	-	2033
Big Lime	2033	-	2090
Big Injun	2090	-	2280
shale	2280	-	2856
Gordon stray	2856	-	2873
shale	2873	-	2880
Gordon	2880	-	2901
shale	2901	-	2913
sand	2913	-	2919
shale	2919	-	3110
TD	3110		

T.D. -Logger	3099	KB
T.D. -Driller	3110	KB

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work

Farm name: BURNSIDE, WILLIAM Operator Well No.: HIRAM LYNCH 201
LOCATION: Elevation: 1,250' Quadrangle: WOLF SUMMIT 7.5'
District: TEN MILE County: HARRISON
Latitude: 3,405 Feet south of 39 Deg 17 Min 30 Sec.
Longitude: 11,700 Feet west of 80 Deg 27 Min 30 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Tristan Jenkins				
Date Permit Issued:	07/27/2012				
Date Well Work Commenced:	08/01/2012				
Date Well Work Completed:	08/07/2012				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable	Rig	7"	630'	630'	existing
Total vertical Depth (ft):	3060'				
Total Measured Depth (ft):	3060'				
Fresh Water Depth (ft):		4 1/2"	2994.15'	2994.15'	existing
Salt Water Depth (ft):					
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	596'-603'				
Void(s) encountered (Y/N) depth(s):					

OPEN FLOW DATA * Waterflood Producer

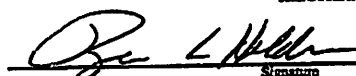
Producing formation Fifth Sand Pay zone depth (ft) 2881'-2912'

Gas: Initial open flow * MCF/d Oil: Initial open flow * Bbl/d
Final open flow * MCF/d Final open flow * Bbl/d
Time of open flow between initial and final tests * Hours
Static rock pressure * psig (surface pressure) after * Hours

Second producing formation Pay zone depth (ft)

Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
Final open flow MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests Hours
Static rock pressure psig (surface pressure) after Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature


Date

Were core samples taken? No

Were cuttings caught during drilling? No

Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment : Treated perms 2881'-2912' w/ 300 gals 15% HCL, 171 bbls cross linked gel, & 5,000# 20/40 sand.

Well Log : See original WR35 report

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work

Farm name: WAYNE, ROBERTA B. Operator Well No.: ANTHONY LOVEALL 8

LOCATION: Elevation: 810' Quadrangle: PINE GROVE 7.5'

District: GREEN County: WETZEL
Latitude: 11,010 Feet south of 39 Deg 32 Min 30 Sec.
Longitude: 5,145 Feet west of 80 Deg 40 Min 0 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Derek Haught				
Date Permit Issued:	09/18/2012				
Date Well Work Commenced:	10/19/2012				
Date Well Work Completed:	11/07/2012				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable Rig		7"	805'	805'	200 sks
Total vertical Depth (ft):	2870'				
Total Measured Depth (ft):	2870'				
Fresh Water Depth (ft):	60', 140'	4 1/2"	2835.2'	2835.2'	210 sks
Salt Water Depth (ft):	1560'				
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	540'-550'				
Void(s) encountered (Y/N) depth(s):	NONE				

OPEN FLOW DATA

* Waterflood Injector

Producing formation Gordon Pay zone depth (ft) 2652'-2658'
2688'-2690.5'

Gas: Initial open flow * MCF/d Oil: Initial open flow * Bbl/d
Final open flow * MCF/d Final open flow * Bbl/d
Time of open flow between initial and final tests * Hours
Static rock pressure * psig (surface pressure) after * Hours

Second producing formation Pay zone depth (ft) 2652'-2658'
2688'-2690.5'

Gas: Initial open flow * MCF/d Oil: Initial open flow * Bbl/d
Final open flow * MCF/d Final open flow * Bbl/d
Time of open flow between initial and final tests * Hours
Static rock pressure * psig (surface pressure) after * Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Bruce H. Helder
Signature

1/3/12
Date

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Environmental Protection

Were core samples taken? No

Were cuttings caught during drilling? No

Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment : Treated perfs 2652'-2658', 2660'-2669', 2681'-2682', 2683.5'-2684.5', & 2688'-2690.5' w/
1500 gals 15% HCL, 377 bbls cross linked gel, and 20,000# 20/40 sand.

Well Log : All depths are measured relative to KB (8' AGL).

Shale w/ sand streaks	0	-	540
Coal	540	-	550
Shale w/ sand streaks	550	-	1082
Sand	1082	-	1118
shale	1118	-	1190
sand	1190	-	1204
shale	1204	-	1218
sand	1218	-	1278
shale	1278	-	1345
sand	1345	-	1370
shale	1370	-	1495
sand	1495	-	1526
shale	1526	-	1574
sand	1574	-	1606
shale	1606	-	1647
sand	1647	-	1670
shale	1670	-	1754
sand	1754	-	1770
shale	1770	-	1783
sand	1783	-	1794
Big Lime	1794	-	1848
Big Injun	1848	-	2058
shale	2058	-	2624
Gordon stray	2624	-	2640
shale	2640	-	2647
Gordon	2647	-	2672
shale	2672	-	2680
sand	2680	-	2692
shale	2692	-	2870
TD	2870		

T.D. -Logger	2889	KB
T.D. -Driller	2870	KB

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: Dice, Glen D. And Catherine

Operator Well No.: Dice # 1

LOCATION: Elevation: 1,543'

Quadrangle: Nestorville 7.5'

District: Pleasants

County: Barbour

Latitude: 9,870 Feet South of 39 Deg. 15 Min. 00 Sec.

Longitude: 9,990 Feet West of 79 Deg. 57 Min. 30 Sec.

Company: Anja Resources

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: 12 Millbrook Rd				
Bridgeport, WV 26330	16"	35'	35'	
Agent: Johnnie Rominger				
Inspector: Bill Hatfield	11 3/4"	588'	588'	290 sx.
Date Permit Issued: 9/21/2012				
Date Well Work Commenced: 10/5/11	8 5/8"	1098'	1098'	230 sx.
Date Well Work Completed: 10/26/11				
Verbal Plugging:	4 1/2"	5084'	5084'	255 sx.
Date Permission granted on:				
Rotary X Cable Rig				
Total Depth (feet): 5,184'				
Fresh Water Depth (ft.): 430'				
Salt Water Depth (ft.):				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 505'				

OPEN FLOW DATA

Producing formation 4th Elk Pay zone depth (ft) 4859' - 4961'
Gas: Initial open flow odor MCF/d Oil: Initial open flow Bbl/d
Final open flow 500 MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests 72 Hours
Static rock Pressure 1000 psig (surface pressure) after 24 Hours
Second producing formation Pay zone depth (ft) 3746' - 4680'
Riley, Benson, 1st Elk & 2nd Elk, 3rd Elk
Gas: Initial open flow * MCF/d Oil: Initial open flow * Bbl/d
Final open flow * MCF/d Final open flow * Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure * psig (surface pressure) after * Hours
* Comingled

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORMANCE INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed:

By: Johnnie Rominger

Date:

12-19-12

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Office of Oil & Gas
DEC 26, 2012
WV Department of Environmental Protection

Riley	3746 - 3835	25,000 #20/40	279bbl. SLF
Benson	4040 - 4084	35,000# 20/40	363 bbl. SLF
1 st & 2 nd Elk	4294 - 4477	25,000# 20/40	314 bbl. SLF
3 rd Elk	4668 - 4680	30,000# 20/40	352 bbl. SLF
4 th Elk	4859 - 4961	25,000# 20/40	309 bbl. SLF

FORMATION	COLOR	HARD/SOFT	TOP	BOTTOM	REMARKS
KB/fill			0	16	
Sand & shale			16	48	.25" FW @ 80'
Sand			48	376	1" FW @ 249'
Sand & Shale			376	411	.25" FW @ 333'
Sand			411	462	
Coal			462	466	.5" ST @ 501'
Sand & Shale			466	1221	
Lime			1221	1378	
Log Tops:					
Squal			1630	1647	Oil Odor
4th Sand			2118	2140	
Bayard			2430	2455	Gas Check@ 2522'
Speechley			2932	2942	12/10 - 2"
Riley			3730	3840	
Benson			4030	4090	
1 st Elk			4258	4300	
2 nd Elk			4416	4485	
3 rd Elk			4660	4685	
4 th Elk			4855	4970	
Total Depth			5184		Gas check @TD 12/10 -2"

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 1/11/2013
API #: 47-033-05621

Farm name: Lowe, Francis L. & Nancy P. Operator Well No.: Lowe Unit 1H

LOCATION: Elevation: 1214' Quadrangle: West Milford

District: Union County: Harrison
Latitude: 8757 Feet South of 38 Deg. 15 Min. 00 Sec.
Longitude 817 Feet West of 80 Deg. 25 Min. 00 Sec.

Company: Antero Resources Appalachian Corp

Address: <u>1625 17th Street</u>	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>Denver, CO 80202</u>	<u>20" 94#</u>	<u>40'</u>	<u>40'</u>	<u>38 Cu. Ft.</u>
Agent: <u>CT Corporation System</u>	<u>13 3/8" 48#</u>	<u>576'</u>	<u>576'</u>	<u>800 Cu. Ft. Class A</u>
Inspector: <u>Tristan Jenkins</u>	<u>9 5/8" 36#</u>	<u>2676'</u>	<u>2676'</u>	<u>1090 Cu. Ft. Class A</u>
Date Permit Issued: <u>6/7/2012</u>	<u>5 1/2" 23#</u>	<u>16227'</u>	<u>16227'</u>	<u>4010 Cu. Ft. Class H</u>
Date Well Work Commenced: <u>6/12/2012</u>				
Date Well Work Completed: <u>11/2/2012</u>				
Verbal Plugging: <u>N/A</u>				
Date Permission granted on: <u>N/A</u>	<u>2 3/8" 4.7#</u>	<u>6981'</u>		
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>6946' TVD</u>				
Total Measured Depth (ft): <u>16227' MD</u>				
Fresh Water Depth (ft.): <u>est. 195'</u>				
Salt Water Depth (ft.): <u>est. 623'</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>Pad constructed on reclaimed PHG strip bench</u>				
Void(s) encountered (N/Y) Depth(s) <u>None</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 5873' TVD (Top)

Gas: Initial open flow _____ MCF/d Oil: Initial open flow N/A Bbl/d

Final open flow 9886 MCF/d Final open flow N/A Bbl/d

Time of open flow between initial and final tests N/A Hours

Static rock Pressure 3600 psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

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Shannon Redi
Signature

1/11/13
Date

Received
Office of Oil & Gas
JAN 14 2013

Were core samples taken? Yes _____ No **X**

Were cuttings caught during drilling? Yes **X** No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list **Yes - CBL**

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Wagner Unit 1H, API# 47-033-05485). Please reference the wireline logs submitted with Form WR-35 for Wagner Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 7062'-16163' (1884 holes)

Frac'd w/ 14,000 gals 15% HCL Acid, 188,434 bbls Slick Water carrying 1,014,691# 100 mesh, 3,828,095# 40/70 and 2,321,422# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): **N/A**

Formations Encountered:	Top Depth	/	Bottom Depth
<u>Surface:</u>			
Big Lime est.	1453'		1564'
Big Injun est.	1565'		1972'
Fifty Foot Sandstone est.	1973'		2115'
Gordon est.	2116'		2382'
Fifth Sandstone est.	2383'		2435'
Bayard est.	2436'		3089'
Speechley est.	3090'		3305'
Balltown est.	3306'		3817'
Bradford est.	3816'		4482'
Benson est.	4483'		4786'
Alexander est.	4787'		5013'
Elk est.	5014'		5541'
Rhinestreet est.	5542'		6464'
Middlesex	6465'		6552'
West River Shale	6553'		6649'
Burket	6650'		6678'
Tully	6679'		6872'
Marcellus	6873'		6946' TVD

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Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 1/11/2013
API #: 47-033-05627

Farm name: Jones, John R. & Catherine V. Operator Well No.: Hurst Unit 2H

LOCATION: Elevation: 1176' Quadrangle: Wolf Summit

District: Sardis County: Harrison
Latitude: 12860' Feet South of 39 Deg. 20 Min. 00 Sec.
Longitude 5855' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Antero Resources Appalachian Corp

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
1625 17th Street Denver, CO 80202	20" 94#	80'	80'	77 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 54.5#	367'	367'	510 Cu. Ft. Class A
Inspector: Tristan Jenkins	9 5/8" 36#	2579'	2579'	1050 Cu. Ft. Class A
Date Permit Issued: 6/19/2012	5 1/2" 20#	13911'	13911'	3403 Cu. Ft. Class H
Date Well Work Commenced: 6/26/2012				
Date Well Work Completed: 10/25/2012				
Verbal Plugging: N/A				
Date Permission granted on: N/A	2 3/8" 4.6#	7178'		
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7126' TVD (deepest point drilled)				
Total Measured Depth (ft): 7042' TVD (BHL), 13911' MD				
Fresh Water Depth (ft.): est. 30', 230'				
Salt Water Depth (ft.): 853', 1535'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): Pad is constructed on reclaimed PHG coal bench				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7081' TVD (Top)

Gas: Initial open flow _____ MCF/d Oil: Initial open flow N/A Bbl/d

Final open flow 5235 MCF/d Final open flow N/A Bbl/d

Time of open flow between initial and final tests N/A Hours

Static rock Pressure 3300 psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Shawn Redin
Signature

1/11/2013
Date

Received
Office of Oil & Gas
JAN 14 2013

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes - CBL

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-well pad (Hurst Unit 1H, API# 47-033-05626). Please reference the wireline logs submitted with Form WR-35 for Hurst Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 7237'-13,847' (1428 holes)

Frac'd w/ 11,592 gals 15% HCL Acid, 140,306 bbls Slick Water carrying 684,590# 100 mesh, 2,657,020# 40/70 and 1,739,500# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

Formations Encountered:	Top Depth	/	Bottom Depth
<u>Surface:</u>			
Big Lime est.	1436'		1486'
Big Injun est.	1487'		2028'
Fifty Foot Sandstone est.	2029'		2210'
Gordon est.	2211'		2455'
Fifth Sandstone est.	2456'		2487'
Bayard est.	2488'		3146'
Speechley	3147'		3370'
Balltown	3371'		3908'
Bradford	3909'		4476'
Benson	4477'		4864'
Alexander	4865'		5140'
Elk	5141'		6647'
Middlesex	6648'		6823'
Burket	6824'		6855'
Tully	6856'		7080'
Marcellus	7081'		7126' TVD

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 1/11/2013
API #: 47-033-05626

Farm name: Jones, John R. & Catherine V. Operator Well No.: Hurst Unit 1H

LOCATION: Elevation: 1176' Quadrangle: Wolf Summit

District: Sardis County: Harrison
Latitude: 12651' Feet South of 39 Deg. 20 Min. 00 Sec.
Longitude 5658' Feet West of 80 Deg. 22 Min. 30 Sec.

Company: Antero Resources Appalachian Corp

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
1625 17th Street Denver, CO 80202	20" 94#	72'	72'	69 Cu. Ft. Class A
Agent: CT Corporation System	13 3/8" 68#	347'	347'	482 Cu. Ft. Class A
Inspector: Tristan Jenkins	9 5/8" 36#	2578'	2578'	1050 Cu. Ft. Class A
Date Permit Issued: 6/19/2012	5 1/2" 20#	13549'	13549'	3303 Cu. Ft. Class H
Date Well Work Commenced: 6/26/2012				
Date Well Work Completed: 10/31/2012				
Verbal Plugging: N/A				
Date Permission granted on: N/A	2 3/8" 4.7#	7367'		
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7140' TVD (deepest point drilled)				
Total Measured Depth (ft): 7032' TVD (BHL), 13549' MD				
Fresh Water Depth (ft.): est. 230'				
Salt Water Depth (ft.): est. 685', 1060'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): Pad is constructed on reclaimed PHG coal bench				
Void(s) encountered (N/Y) Depth(s) None				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7095' TVD (Top)

Gas: Initial open flow _____ MCF/d Oil: Initial open flow N/A Bbl/d

Final open flow 7600 MCF/d Final open flow N/A Bbl/d

Time of open flow between initial and final tests N/A Hours

Static rock Pressure 3300 psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Shauna Redi
Signature

1/11/2013
Date

Received
Office of Oil & Gas
JAN 14 2013

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes - CBL,
Photo Density/ Compensated Neutron/ Temperature and Gamma Ray/ Array Induction

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 7,382'-13,488' (1344 holes)

Frac'd w/ 10,080 gals 15% HCL Acid, 128,496 bbls Slick Water carrying 662,409# 100 mesh,
2,544,445# 40/70 and 1,620,170# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		
Big Lime	1436'	1486'
Big Injun	1487'	2028'
Fifty Foot Sandstone	2029'	2210'
Gordon	2211'	2455'
Fifth Sandstone	2456'	2487'
Bayard	2488'	3133'
Speechley	3134'	3333'
Balltown	3334'	3858'
Bradford	3859'	4489'
Benson	4490'	4797'
Alexander	4798'	5158'
Elk	5159'	6661'
Middlesex	6662'	6849'
Burket	6850'	6877'
Tully	6878'	7094'
Marcellus	7095'	7140' TVD

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 12/26/2012
API #: 47-033-05583
UPDATED

Farm name: Hurst, Clara Mae et al Operator Well No.: Sayler Unit 2H

LOCATION: Elevation: 1172' Quadrangle: West Milford

District: Union County: Harrison
Latitude: 10,590' Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 7,810' Feet West of 80 Deg. 27 Min. 30 Sec.

Company: Antero Resources Appalachian Corp

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
1625 17th Street Denver, CO 80202	20" 94#	40'	40'	38 Cu. Ft. Class A
Agent: CT Corporation System	13-3/8" 54.5#	598'	598'	831 Cu. Ft. Class A
Inspector: Tristan Jenkins	9-5/8" 36#	2752'	2752'	1121 Cu. Ft. Class A
Date Permit Issued: 1/25/2012	5-1/2" 20#	15465'	15465'	3778 Cu. Ft. Class H
Date Well Work Commenced: 3/7/2012				
Date Well Work Completed: 7/11/2012	2-3/8" 4.7#	7107'		
Verbal Plugging: N/A				
Date Permission granted on: N/A				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7162' TVD				
Total Measured Depth (ft): 15465' MD, 7161' TVD (BHL)				
Fresh Water Depth (ft.): est. 175'				
Salt Water Depth (ft.): est. 1318', 1403', 1787', 2077'				
Is coal being mined in area (N/Y)? No				
Coal Depths (ft.): est. 103', 167', 223'				
Void(s) encountered (N/Y) Depth(s) N, N/A				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7020' TVD (Top)

Gas: Initial open flow _____ MCF/d Oil: Initial open flow N/A Bbl/d

Final open flow 8770 MCF/d Final open flow N/A Bbl/d

Time of open flow between initial and final tests N/A Hours

Static rock Pressure 3800 psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Lisa B. Bineley
Signature

12/26/12
Date

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Office of Oil & Gas
DEC 28 2012
WV Department of
Environmental Protection

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes - CBL, Photo Density/Compensated Neutron/
Gamma Ray, and Dual Laterolog/Density Caliper/ Gamma Ray.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 7199' - 15400' MD (1704 holes)

Frac'd w/ 12,500 gals 15% HCL Acid, 170,696bbls Slick Water carrying 887,500# 100 mesh,
3,403,300# 40/70 and 2,037,100# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		
Big Lime	1,672'	1,773'
Big Injun	1,774'	2,137'
Fifty Foot Sand	2,138'	2,243'
Gordon	2,244'	2,534'
Fifth Sandstone	2,535'	2,576'
Bayard	2,577'	3,223'
Speechley	3,224'	3,470'
Balltown	3,471'	3,989'
Bradford	3,990'	4,610'
Benson	4,611'	4,846'
Alexander	4,847'	4,994'
Elk	4,995'	5,592'
Rhinestreet	5,593'	6,386'
Sycamore	6,387'	6,640'
Middlesex	6,641'	6,808'
Burkett	6,809'	6,839'
Tully	6,840'	6,957'
Hamilton	6,958'	7,019'
Marcellus	7,020'	7,162'

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 1/3/2013
API #: 47-001-03104F

Farm name: Ward, A.M. & Jean W. Operator Well No.: Ward 2241H

LOCATION: Elevation: 1284' Quadrangle: Brownston

District: Union County: Barbour
Latitude: 10,898' Feet South of 39 Deg. 10 Min. 00 Sec.
Longitude 4,816' Feet West of 80 Deg. 12 Min. 30 Sec.

Company: XTO Energy Inc

Address: <u>PO Box 1008, Jane Lew, WV 26378</u>	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	<u>20"</u>	<u>40'</u>	<u>40'</u>	<u>CTS</u>
Agent: <u>Gary Beall</u>	<u>13-3/8"</u>	<u>295'</u>	<u>295'</u>	<u>CTS</u>
Inspector: <u>Bryan Harris</u>	<u>9-5/8"</u>	<u>2646'</u>	<u>2646'</u>	<u>CTS</u>
Date Permit Issued: <u>2/12/2010</u>	<u>5-1/2"</u>	<u>10313'</u>	<u>10313'</u>	<u>Lead 2390bbls/Tell 2030bbls</u>
Date Well Work Commenced: <u>1/14/2011</u>				
Date Well Work Completed: <u>10/4/12</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7,590'</u>				
Total Measured Depth (ft): <u>10,313'</u>				
Fresh Water Depth (ft.): <u>None Noted</u>				
Salt Water Depth (ft.): <u>1,295'</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>None Noted</u>				
Void(s) encountered (N/Y) Depth(s) <u>None Noted</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7588-7727

Gas: Initial open flow 149 MCF/d Oil: Initial open flow 0 Bbl/d

Final open flow 418 MCF/d Final open flow 0 Bbl/d

Time of open flow between initial and final tests 24 Hours

Static rock Pressure 650 psig (surface pressure) after 12 Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

1-4-13
Date

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Yes- CBL

This is a subsequent well. Antero only runs wireline logs on the first well on a multi-pad (Gerrard Unit 1H API# 47-033-05429). Please reference wireline logs submitted with Form WR-35 for Gerrard Unit 1H.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Perforations: 7382' - 13,919' MD (1,368 holes)

Frac'd w/ 10,000 gals 15% HCL Acid, 143,272 bbls Slick Water carrying 690,632# 100 mesh, 3,195,167# 40/70 and 2,173,270# 20/40 sand.

Plug Back Details Including Plug Type and Depth(s): N/A

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		
Big Lime est.	1,551'	1,613'
Big Injun est.	1,614'	1,983'
Gantz Sand est.	1,984'	2,069'
Fifty Foot Sandstone est.	2,070'	2,269'
Gordon est.	2,270'	2,507'
Fifth Sandstone est.	2,508'	3,225'
Speechley est.	3,226'	3,440'
Balltown est.	3,441'	3,917'
Bradford est.	3,918'	4,559'
Benson est.	4,560'	4,886'
Alexander est.	4,887'	5,137'
Elk est.	5,138'	6,413'
Sycamore	6,414'	6,690'
Sonyea	6,691'	6,691'
Middlesex	6,692'	6,830'
Genundewa	6,831'	6,866'
Burket	6,867'	6,891'
Tully	6,892'	7,024'
Hamilton	7,025'	7,109'
Marcellus	7,110'	7,281' TVD

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 1/3/2013
API #: 47-001-03133F

Farm name: Ward, A.M. & Jean W. Operator Well No.: Ward 2245H

LOCATION: Elevation: 1284' Quadrangle: Brownnton

District: Union County: Barbour
Latitude: 10,801' Feet South of 39 Deg. 10 Min. 00 Sec.
Longitude 14,023' Feet West of 80 Deg. 10 Min. 00 Sec.

Company: XTO Energy Inc

Address: PO Box 1008, Jane Lew, WV 26378	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	20"	40'	40'	CTS
Agent: Gary Beall	13-3/8"	294'	294'	CTS
Inspector: Bryan Harris	9-5/8"	2644'	2644'	CTS
Date Permit Issued: 4/23/2010	5-1/2"	10505'	10505'	Lead 220bbbs/Tell 1300 ax
Date Well Work Commenced: 2/2/2011				
Date Well Work Completed: 10/1/2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7,666				
Total Measured Depth (ft): 10,505				
Fresh Water Depth (ft.): None Noted				
Salt Water Depth (ft.): 1,288				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): None Noted				
Void(s) encountered (N/Y) Depth(s) None Noted				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7602-7731

Gas: Initial open flow 123 MCF/d Oil: Initial open flow 0 Bbl/d

Final open flow 1318 MCF/d Final open flow 0 Bbl/d

Time of open flow between initial and final tests 24 Hours

Static rock Pressure 1480 psig (surface pressure) after 17 Hours

Second producing formation Pay zone depth (ft)

Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d

Final open flow MCF/d Final open flow Bbl/d

Time of open flow between initial and final tests Hours

Static rock Pressure psig (surface pressure) after Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

1-4-13
Date

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GR, ROP, Directional Survey, Total Gas, Mudlogs

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Stg 1 Marcellus; 10,259'-10,446'; 72 shots; Slick water frac; Avg treating 5596 psi@86 bpm; 104,283#s 100 mesh; 302,869#s 30/50 mesh; 9224 bbl water, 0 bbl treated water

Stg 2 Marcellus; 9844'-10,175'; 60 shots; Slick water frac; Avg treating 5596 psi@81 bpm; 102,874#s 100 mesh; 240,855#s 30/50 mesh; 9018 bbl water, 0 bbl treated water

Stg 3 Marcellus; 9616'-9789'; 60 shots; Slick water frac; Avg treating 6629 psi@94 bpm; 102,885#s 100 mesh; 302,348#s 30/50 mesh; 9903 bbl water, 0 bbl treated water

Stg 4 Marcellus; 9317'-9547'; 60 shots; Slick water frac; Avg treating 5556 psi@94 bpm; 102,230#s 100 mesh; 300,902#s 30/50 mesh; 9995 bbl water, 0 bbl treated water

Stg 5 Marcellus; 9003'-9233'; 60 shots; Slick water frac; Avg treating 5308 psi@83 bpm; 100,196#s 100 mesh; 302,814#s 30/50 mesh; 9389 bbl water, 0 bbl treated water

Stg 6 Marcellus; 8689'-8919'; 60 shots; Slick water frac; Avg treating 5648 psi@84 bpm; 101,500#s 100 mesh; 301,317#s 30/50 mesh; 9379 bbl water, 0 bbl treated water

Plug Back Details Including Plug Type and Depth(s):

Formations Encountered: _____ **Top Depth** _____ / _____ **Bottom Depth** _____
Surface: _____

Shale - Grey 0-100

SS - Grey 100-130

SS & SH- Brown 130-200

SH - Red 200-215

SH - Brown/Grey 215-595

SH - Red 595-620

SH & SS-Grey 620-735

SS-White 735-790

SS & SH Grey 790-1000

SH- Black 1000-1040

SS & SH-Grey 1040-1375

SH - Red 1375-1420

SH & SS-Grey 1420-1823

continued on attached page

Well Name: Ward 2245H
API # 47-001-03104

Perforated Intervals, Fracturing, or Stimulation

Stg 7 Marcellus; 8375'-8605'; 60 shots; Slick water frac; Avg treating 5619 psi@83 bpm; 100,435#s 100 mesh; 300,548#s 30/50 mesh; 9727 bbl water

Stg 8 Marcellus; 8061'-8242'; 60 shots; Slick water frac; Avg treating 6138 psi@82 bpm; 99,496#s 100 mesh; 250,067#s 30/50 mesh; 8518 bbl water

Ward 2245H

FORMATION	TVD
BIG INJUN*	1823
BASE*	1900
GANTZ SAND*	2060
BASE*	2079
50FT SAND*	2107
BASE*	2192
30FT SAND*	2205
BASE*	2262
GORDON SAND*	2280
BASE*	2308
4TH SAND*	2537
BASE*	2556
5TH SAND*	2621
BASE*	2662
UPPER BALLTOWN*	3439
BASE*	3453
BALLTOWN*	3517
BASE*	3528
LOWER BALLTOWN*	3723
BASE*	3748
GENESEO SHALE	7418
BASE	7447
TULLY LIMESTONE	7447
BASE	7484
HAMILTON SHALE	7484
BASE	7602
MARCELLUS SHALE	7602
BASE	7731
PURCELL LIMESTONE	7664
BASE	7668
ONONDAGA LIMESTONE	7731
BASE**	7748

* Tops projected from offset log due to air drilling and therefore not logging this section

** Tops projected from offset isopach did not drill through these tops

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 12-18-2012
API #: 47-009-00110

Farm name: Sandra Parr BRK 3H Operator Well No.: 833979

LOCATION: Elevation: 1280' Quadrangle: Bethany WV

District: Buffalo County: Brooke
Latitude: 5580' Feet South of 40 Deg. 12 Min. 30 Sec.
Longitude 10840' Feet West of 80 Deg. 30 Min. 00 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496				
Oklahoma City, OK 73154-0496	20"	105'	105'	437 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	673'	673'	791 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	2067'	2067'	881 Cu. Ft.
Date Permit Issued: 11-16-2011	5 1/2"	11425'	11425'	2722 Cu. Ft.
Date Well Work Commenced: 7-6-2012				
Date Well Work Completed: 9-23-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6423'				
Total Measured Depth (ft): 11425'				
Fresh Water Depth (ft.): 175'				
Salt Water Depth (ft.): 1260'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 613'				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 8,880'-11,294'

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow 1,327 MCF/d Final open flow 128 Bbl/d

Time of open flow between initial and final tests 45 Hours *Calculated

Static rock Pressure 4,119 psig (surface pressure) after 45 Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Marlene Williams
Signature

12-21-2012
Date

RECEIVED
Office of Oil & Gas
DEC 28 2012
West Virginia Department of
Environmental Protection

Were core samples taken? Yes _____ No N

Were cuttings caught during drilling? Yes Y No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GR, neutron, density, and resistivity
open hole logs run from 55-2080' MD; LWD GR from 5700-11425' MD.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

See attached

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
<u>Surface:</u>			

See attached

Well Number and Name: 833979 Sandra Parr BRK 3H

[illegible]

LATERAL WELLBORE (no vertical pilot hole associated with this well)**Maximum TVD of wellbore: 6423 ft TVD @ 7906 ft MD**

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS	0	0	350	350
SHALE	350	350	613	613
PITTSBURG COAL	613	613	621	621
SHALE	621	621	700	700
SS	700	700	1200	1200
SS/LS	1200	1200	1320	1320
SS	1320	1320	1650	1650
BIG LIME	1650	1650	1770	1770
BIG INJUN (SS)	1770	1770	1967	1967
SHALE	1967	1967	6257	6216
GENESEO (SH)	6257	6216	6281	6233
TULLY (LS)	6281	6233	6348	6276
HAMILTON (SH)	6348	6276	6678	6398
MARCELLUS (SH)	6678	6398		
TD OF LATERAL			11425	6337

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 6/22/11
API #: 470510138

Farm name: Snyder Operator Well No.: 1H

LOCATION: Elevation: 1365.85' Quadrangle: Moundsville

District: Webster County: Marshall
Latitude: 5904 Feet South of 39 Deg. 57 Min. 30 Sec.
Longitude 1018 Feet West of 80 Deg. 37 Min. 30 Sec.

Company: Chief Oil & Gas

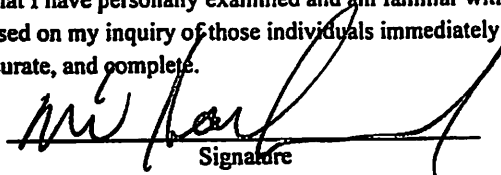
Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
5960 Sherry Ln - Suite 1500 Dallas, TX 75225	24"	60'	60'	Sanded in
Agent: Chad S. Lovejoy	20"	469'	469'	516
Inspector: Bill Hendershot	13 3/8"	1130'	1130'	1099 circ
Date Permit Issued: 10/26/10	9 5/8"	2419'	2419'	1059 circ
Date Well Work Commenced: 12/04/10	5 1/2"	11425'	11425'	2707'
Date Well Work Completed: 01/16/12				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6665'				
Total Measured Depth (ft): 11425'				
Fresh Water Depth (ft):				
Salt Water Depth (ft): NA				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 865'				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation MRCL Pay zone depth (ft) 6841'
Gas: Initial open flow NA MCF/d Oil: Initial open flow NA Bbl/d
Final open flow NA MCF/d Final open flow NA Bbl/d
Time of open flow between initial and final tests NA Hours
Static rock Pressure NA psig (surface pressure) after NA Hours

Second producing formation Pay zone depth (ft)
Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
Final open flow MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature
6-7-12
Date

Were core samples taken? Yes _____ No ☒

Were cuttings caught during drilling? Yes ☒ No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Gamma Ray/Cement Bond Log

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

560 shots

Sand 3,166,000 # 100 mesh

Sand 3,028,400 # 40/70 mesh

114,680 Bbl treated FW

Plug Back Details Including Plug Type and Depth(s): NA

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
<u>Surface:</u>			
Sandstone	500	/	650
Sandstone & Shale	650	/	800
Sandstone/Coal	800	/	910
Sandstone	910	/	980
Shale/Coal	980	/	1010
Sandstone	1010	/	1900
Sandstone & Shale	1900	/	2616
Shale	2616	/	2926
Shale	2926	/	3000
Sandstone	3000	/	3350
Sandstone & Shale	3350	/	6446
Burkett	6446	/	6465
Tully	6465	/	6496
Hamilton	6496	/	6595
Marcellus	6595	/	11425

JUL 18 2012

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 6/22/11
API #: 4705101393

Farm name: Hazlett Operator Well No.: 1H

LOCATION: Elevation: 1155.39' Quadrangle: Moundsville

District: Union County: Marshall
Latitude: 13940 Feet South of 40 Deg. 00 Min. 00 Sec.
Longitude 2343 Feet West of 80 Deg. 42 Min. 30 Sec.

Company: Chief Oil & Gas

Address: <u>5956 Sherry Ln - Suite 1500</u>	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>Dallas, TX 75225</u>	<u>24"</u>	<u>80'</u>	<u>80'</u>	<u>Sanded in</u>
Agent: <u>Chad S. Lovejoy</u>	<u>20"</u>	<u>397'</u>	<u>397'</u>	<u>487 circ</u>
Inspector: <u>Bill Hendershot</u>	<u>13 3/8"</u>	<u>920'</u>	<u>920'</u>	<u>837 circ</u>
Date Permit Issued: <u>11/23/10</u>	<u>9 5/8"</u>	<u>2313'</u>	<u>2313'</u>	<u>910 circ</u>
Date Well Work Commenced: <u>11/22/10</u>	<u>5 1/2"</u>	<u>10933'</u>	<u>10933'</u>	<u>2134</u>
Date Well Work Completed: <u>12/21/10</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>6155'</u>				
Total Measured Depth (ft): <u>10933'</u>				
Fresh Water Depth (ft.): <u>98'</u>				
Salt Water Depth (ft.): <u>NA</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>635'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation MRCL Pay zone depth (ft) 6155'

Gas: Initial open flow 0 MCF/d Oil: Initial open flow 0 Bbl/d

Final open flow 2200 MCF/d Final open flow 500 Bbl/d

Time of open flow between initial and final tests 48 Hours

Static rock Pressure NA psig (surface pressure) after NA Hours

Second producing formation _____ Pay zone depth (ft) _____

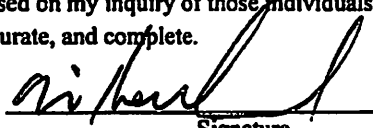
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

6-7-12
Date

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Gamma/Cement Bond Log

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

560 shots

Sand 3,046,600 # 100 mesh

Sand 3,020,300 # 40/70 mesh

107,264 Bbl treated FW

Plug Back Details Including Plug Type and Depth(s): NA

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
--------------------------------	------------------	----------	---------------------

Surface:

Sandstone	2300	/	2420
Sandstone & Shale	2420	/	2750
Shale	2750	/	2790
Sandstone & Shale	2890	/	3080
Sandstone/Siltstone	3080	/	3650
Shale	3650	/	4550
Sand/Shale	4550	/	5690
Carbonate/Shale	5690	/	5920
Shale/Limestone	5920	/	6083
Carbonate/Blk Shale	6083	/	6203
Limestone	6203	/	6230

JUL 18 2012

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 6/22/11
API #: 4705101395

Farm name: Crow Operator Well No.: 1H

LOCATION: Elevation: 1080 Quadrangle: Moundsville

District: Webster County: Marshall
Latitude: 11054 Feet South of 39 Deg. 55 Min. 00 Sec.
Longitude 8184 Feet West of 80 Deg. 37 Min. 30 Sec.

Company: Chief Oil and Gas

Address: <u>5956 Sherry Ln, Suite 1500</u>	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>Dallas, Texas 75225</u>	<u>24"</u>	<u>80</u>	<u>80</u>	<u>Sanded in</u>
Agent: <u>Chad S. Lovejoy</u>	<u>20"</u>	<u>483</u>	<u>483</u>	<u>468 cts</u>
Inspector: <u>Bill Hendershot</u>	<u>13 3/8"</u>	<u>908</u>	<u>908</u>	<u>910 cts</u>
Date Permit Issued: <u>10/27/10</u>	<u>9 5/8"</u>	<u>2154</u>	<u>2154</u>	<u>918 cts</u>
Date Well Work Commenced: <u>12/19/10</u>	<u>5 1/2"</u>	<u>11328</u>	<u>11328</u>	<u>2298</u>
Date Well Work Completed: <u>01/21/11</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>6552</u>				
Total Measured Depth (ft): <u>11345</u>				
Fresh Water Depth (ft.): <u>NA</u>				
Salt Water Depth (ft.): <u>NA</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>605</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 6552'

Gas: Initial open flow NA MCF/d Oil: Initial open flow NA Bbl/d

Final open flow NA MCF/d Final open flow NA Bbl/d

Time of open flow between initial and final tests NA Hours

Static rock Pressure NA psig (surface pressure) after NA Hours

Second producing formation NA Pay zone depth (ft) _____

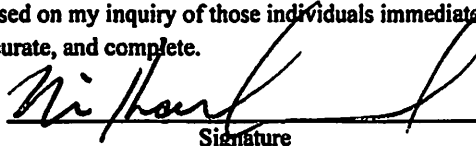
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

6-7-12
Date

Were core samples taken? Yes _____ No ☒

Were cuttings caught during drilling? Yes ☒ No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list MWD Gamma

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

400 holes

100,991 Bbl FW

3,401,200 # 100 mesh sand

3,554,000 # 40/70 mesh sand

Plug Back Details Including Plug Type and Depth(s): NA

Formations Encountered: _____ Top Depth _____ / _____ Bottom Depth _____
Surface:

Sandstone/Shale	0	/	497
Coal/Sandstone/Shale	497	/	605
Pittsburgh Coal	605	/	685
Sandstone	685	/	728
Claystone	728	/	893
Sandstone	893	/	3229
Shale/Sandstone	3229	/	6295
Burkett	6295	/	6342
Tully	6342	/	6380
Hamilton	6380	/	6552
Marcellus	6552	/	11345

JUL 18

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 8/03/2012
API #: 47-049-02129

Farm name: Cain, Richard Operator Well No.: Fenn A 1H

LOCATION: Elevation: 1,251' Quadrangle: Shinnston

District: Lincoln County: Marion
Latitude: 610' Feet South of 39 Deg. 27 Min. 30 Sec.
Longitude 7,330' Feet West of 80 Deg. 17 Min. 30 Sec.

Company: XTO Energy, Inc.

Address: <u>PO Box 1008, Jane Lew, WV 26378</u>	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	<u>20"</u>	<u>120'</u>	<u>114'</u>	<u>C.T.S.</u>
Agent: <u>Gary Beall</u>	<u>13 3/8"</u>	<u>462'</u>	<u>462'</u>	<u>401.2 cuft</u>
Inspector: <u>Tristan Jenkins</u>	<u>9 5/8"</u>	<u>3,046'</u>	<u>3,046'</u>	<u>1020 cuft</u>
Date Permit Issued: <u>12/27/2010</u>	<u>5 1/2"</u>	<u>12,700'</u>	<u>12,670'</u>	<u>2634.72 cuft</u>
Date Well Work Commenced: <u>5/30/2011</u>				
Date Well Work Completed: <u>10/28/2011</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7,490'</u>				
Total Measured Depth (ft): <u>12,700'</u>				
Fresh Water Depth (ft.): <u>406'</u>				
Salt Water Depth (ft.): <u>None Noted</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>None Noted</u>				
Void(s) encountered (N/Y) Depth(s) <u>412'</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7484'-7490'

Gas: Initial open flow Show MCF/d Oil: Initial open flow Bbl/d

Final open flow Show MCF/d Final open flow Bbl/d

Time of open flow between initial and final tests Hours

Static rock Pressure psig (surface pressure) after Hours

Second producing formation Pay zone depth (ft)

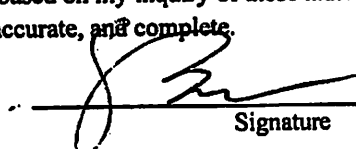
Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d

Final open flow MCF/d Final open flow Bbl/d

Time of open flow between initial and final tests Hours

Static rock Pressure psig (surface pressure) after Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

8-3-12
Date

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes X No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list _____
MWD, GR, ROP, VS, TVD

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Stg 1 Marcellus; 12,418'-12,596; 72 shots; Slick water frac; Avg treating 7047 psi@79 bpm; 75,977#s 100 mesh; 269,851#s 30/50 mesh; 7,052 bbl water, 961 bbl treated water

Stg 2 Marcellus; 12,159'-12,337; 72 shots; Slick water frac; Avg treating 7151 psi@74 bpm; 74,374#s 100 mesh; 267,916#s 30/50 mesh; 7,118 bbl water, 637 bbl treated water

Stg 3 Marcellus; 11,900'-12,078; 72 shots; Slick water frac; Avg treating 7249 psi@77 bpm; 74,001#s 100 mesh; 263,863#s 30/50 mesh; 6,824 bbl water, 969 bbl treated water

Stg 4 Marcellus; 11,641'-11,819; 72 shots; Slick water frac; Avg treating 7280 psi@76 bpm; 75,791#s 100 mesh; 174,457#s 30/50 mesh; 6,134 bbl water, 778 bbl treated water

Stg 5 Marcellus; 11,382'-11,560; 72 shots; Slick water frac; Avg treating 7251 psi@81 bpm; 78,427#s 100 mesh; 265,678#s 30/50 mesh; 8,168 bbl water

Stg 6 Marcellus; 11,123'-11,301; 72 shots; Slick water frac; Avg treating 7100 psi@81 bpm; 75,500#s 100 mesh; 265,305#s 30/50 mesh; 7,878 bbl water

Plug Back Details Including Plug Type and Depth(s):

See additional page

Formations Encountered:

Top Depth

/

Bottom Depth

Surface:

Office of Oil & Gas

AUG 06 2012

Little Lime 1710

Big Lime 1741

Big Injun 1836

5th Sand 2809

Balltown 3709

Geneseo Shale 7197 - 7241

Tully Limestone 7241 - 7291

Hamilton Shale 7291 - 7349

Marcellus Shale 7349 - 7450

Purcell Limestone 7450 - 7490

NY Department of
Environmental Protection

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 8/03/2012
API #: 47-049-02138

Farm name: Cain, Richard Operator Well No.: Fenn A 10H

LOCATION: Elevation: 1,251' Quadrangle: Shinnston

District: Lincoln County: Marion
Latitude: 830' Feet South of 38 Deg. 27 Min. 30 Sec.
Longitude 7,340' Feet West of 80 Deg. 17 Min. 30 Sec.

Company: XTO Energy, Inc.

Address: <u>PO Box 1008, Jane Lew, WV 26378</u>	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	<u>20"</u>	<u>73'</u>	<u>73'</u>	<u>97 sks</u>
Agent: <u>Gary Beall</u>	<u>13 3/8"</u>	<u>605'</u>	<u>605'</u>	<u>401.2 cuft</u>
Inspector: <u>Tristan Jenkins</u>	<u>9 5/8"</u>	<u>3,043'</u>	<u>3,043'</u>	<u>1266 cuft</u>
Date Permit Issued: <u>1/28/2011</u>	<u>5 1/2"</u>	<u>11,210'</u>	<u>11,210'</u>	<u>2864.1 cuft</u>
Date Well Work Commenced: <u>6/04/2011</u>				
Date Well Work Completed: <u>1/09/2011 @ 2</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7,489'</u>				
Total Measured Depth (ft): <u>11,210'</u>				
Fresh Water Depth (ft.): <u>None Noted</u>				
Salt Water Depth (ft.): <u>None Noted</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>None Noted</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7451'-7489'

Gas: Initial open flow Show MCF/d Oil: Initial open flow Bbl/d

Final open flow Show MCF/d Final open flow Bbl/d

Time of open flow between initial and final tests Hours

Static rock Pressure psig (surface pressure) after Hours

Second producing formation Pay zone depth (ft)

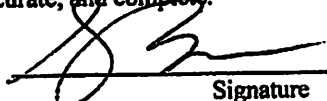
Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d

Final open flow MCF/d Final open flow Bbl/d

Time of open flow between initial and final tests Hours

Static rock Pressure psig (surface pressure) after Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

8-3-12
Date

Were core samples taken? Yes _____ No ☒

Were cuttings caught during drilling? Yes ☒ No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list _____
MWD, GR, ROP, VS, TVD

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Stg 1 Marcellus; 10,967'-11,145; 72 shots; Slick water frac; Avg treating 7160 psi@76 bpm; 51,795#s 100 mesh; 153,201#s 30/50 mesh; 6613 bbl water

Stg 2 Marcellus; 10,708'-10,886; 72 shots; Slick water frac; Avg treating 7264 psi@79 bpm; 50,002#s 100 mesh; 149,118#s 30/50 mesh; 5182 bbl water

Stg 3 Marcellus; 10,449'-10,627; 72 shots; Slick water frac; Avg treating 7123 psi@80 bpm; 68,392#s 100 mesh; 231,663#s 30/50 mesh; 6511 bbl water, 501 bbl treated water

Stg 4 Marcellus; 10,190'-10,368; 72 shots; Slick water frac; Avg treating 7056 psi@80 bpm; 71,028#s 100 mesh; 221,723#s 30/50 mesh; 6,249 bbl water, 624 bbl treated water

Stg 5 Marcellus; 9,931'-10,109; 72 shots; Slick water frac; Avg treating 7179 psi@83 bpm; 86,067#s 100 mesh; 260,721#s 30/50 mesh; 7371 bbl water, 826 bbl treated water

Stg 6 Marcellus; 9,672'-9,850; 72 shots; Slick water frac; Avg treating 7201 psi@80 bpm; 88,594#s 100 mesh; 267,058#s 30/50 mesh; 7,345 bbl water, 816 treated water

Plug Back Details Including Plug Type and Depth(s):

See additional page

Formations Encountered:	Top Depth	/	Bottom Depth
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Surface:

Little Lime	1710
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Big Lime	1741
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Big Injun	1836
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5th Sand	2809
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Balltown	3709
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Geneseo Shale	7194 - 7235
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Tully Limestone	7235 - 7284
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Hamilton Shale	7284 - 7348
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Marcellus Shale	7348 - 7444
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Purcell Limestone	7444 - 7489
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Office of
Oil and Gas

AUG 06 2012

NY State Department of
Environmental Conservation

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 12-4-2012
API #: 47-089-00109

Farm name: Mark Hickman OHI 8H Operator Well No.: 834585

LOCATION: Elevation: 1285' Quadrangle: Valley Grove

District: Triadelphia County: Ohio
Latitude: 1660' Feet South of 40 Deg. 02 Min. 30 Sec.
Longitude 720' Feet West of 80 Deg. 32 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>P.O. Box 18496</u>				
<u>Oklahoma City, OK 73154-0496</u>	<u>13 3/8"</u>	<u>761'</u>	<u>761'</u>	<u>589 Cu. Ft.</u>
Agent: <u>Eric Gillespie</u>	<u>9 5/8"</u>	<u>2280'</u>	<u>2280'</u>	<u>1010 Cu. Ft.</u>
Inspector: <u>Bill Hendershot</u>	<u>5 1/2"</u>	<u>14149'</u>	<u>14149'</u>	<u>3345 Cu. Ft.</u>
Date Permit Issued: <u>3-1-2012</u>				
Date Well Work Commenced: <u>5-19-2012</u>				
Date Well Work Completed: <u>9-10-2012</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>6801'</u>				
Total Measured Depth (ft): <u>14151'</u>				
Fresh Water Depth (ft.): <u>30'</u>				
Salt Water Depth (ft.): <u>1015'</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>713'</u>				
Void(s) encountered (N/Y) Depth(s) <u>713'-721' COAL VOID</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 8,957'-14,003'

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow 2,352 MCF/d Final open flow 95 Bbl/d

Time of open flow between initial and final tests 156 Hours

Static rock Pressure 4,421 psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Marlon Williams
Signature

12-11-2012
Date

Were core samples taken? Yes _____ No X _____

Were cuttings caught during drilling? Yes _____ No X _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list LWD GR from 6,070' - 14,150' MD

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

See attached

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
<u>Surface:</u>			

See attached

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 12-4-2012
API #: 47-069-00082

Farm name: Mark Hickman 5H Operator Well No.: 833343

LOCATION: Elevation: 1285' Quadrangle: Valley Grove WV

District: Triadelphia County: Ohio
Latitude: 1840' Feet South of 40 Deg. 02 Min. 30 Sec.
Longitude 710' Feet West of 80 Deg. 32 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address: P.O. Box 18496	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Oklahoma City, OK 73154-0496	13 3/8"	759	759'	112 Cu. Ft.
Agent: Eric Gillespie	9 5/8"	2265'	2265'	920 Cu. Ft.
Inspector: Bill Hendershot	5 1/2"	13078'	13078'	3312 Cu. Ft.
Date Permit Issued: 5-17-2011				
Date Well Work Commenced: 8-14-2011				
Date Well Work Completed: 9-9-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6698'				
Total Measured Depth (ft): 13078'				
Fresh Water Depth (ft.): 30'				
Salt Water Depth (ft.): 1015'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): ~700'				
Void(s) encountered (N/Y) Depth(s) Y ~700'				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7,150'-12,948'

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow 2,405 MCF/d Final open flow 104 Bbl/d

Time of open flow between initial and final tests 186 Hours

Static rock Pressure 4,297 psig (surface pressure) after _____ Hours

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow _____ MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ Hours

Static rock Pressure _____ psig (surface pressure) after _____ Hours

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ENVIRONMENTAL PROTECTION

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

M. Williams
Signature

12-11-2012
Date

Were core samples taken? Yes _____ No X

Were cuttings caught during drilling? Yes _____ No X

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list LWD GR from 5,442' - 13,016 MD

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

See attached

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
<u>Surface:</u>			

See attached

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 1-3-2013
API #: 47-069-00073

Farm name: Clarence Farmer 10H Operator Well No.: 832974

LOCATION: Elevation: 1345' Quadrangle: Bethany, WV

District: Liberty County: Ohio
Latitude: 9500' Feet South of 40 Deg. 10 Min. 00 Sec.
Longitude 7140' Feet West of 80 Deg. 32 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496				
Oklahoma City, OK 73154-0496	20"	96'	96'	280 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	690'	690'	802 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	2137'	2137'	870 Cu. Ft.
Date Permit Issued: 1/13/2011	5 1/2"	11402'	11402'	2666 Cu. Ft.
Date Well Work Commenced: 4/24/2011				
Date Well Work Completed: 11/28/2011				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6418'				
Total Measured Depth (ft): 11405'				
Fresh Water Depth (ft.): 300'				
Salt Water Depth (ft.): 1000'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 625'				
Void(s) encountered (N/Y) Depth(s) Y 625'				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7,078-11,260
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 2,038 MCF/d Final open flow 255 Bbl/d
Time of open flow between initial and final tests 36 Hours *Calculated
Static rock Pressure 4,172 psig (surface pressure) after 36 Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Marlene Williams
Signature

1-3-2013
Date

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OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Were core samples taken? Yes _____ No N Were cuttings caught during drilling? Yes Y No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GR, neutron, density, and resistivity
open hole logs run from 62-2161' MD; LWD GR from 5400-11405' MD.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

See attached

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>/</u>	<u>Bottom Depth</u>
<u>Surface:</u>			

See attached

**State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work**

Farm name: LEMASTERS, DAVID W. AND BA Operator Well No.: B.A. SWIGER 10

LOCATION: Elevation: 1,171' Quadrangle: CENTERPOINT 7.5'

District: MCELROY County: TYLER
Latitude: 6,790 Feet south of 39 Deg 27 Min 30 Sec.
Longitude: 11,205 Feet west of 80 Deg 40 Min 0 Sec.

Company Address:	HG Energy PO Box 5519 Vienna, WV 26105	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Inspector:	Joe Taylor				
Date Permit Issued:	09/14/2012				
Date Well Work Commenced:	11/06/2012				
Date Well Work Completed:	12/03/2012				
Verbal Plugging:					
Date Permission Granted On:					
Rotary X Cable	Rig	7"	759'	759'	280 sks
Total vertical Depth (ft):	3189'				
Total Measured Depth (ft):	3515'				
Fresh Water Depth (ft):	440'	4 1/2"	3438.4'	3438.4'	275 sks
Salt Water Depth (ft):	1490'				
Is Coal being mined in ares (Y/N)?	No				
Coal Depths (ft): x	956'-966'				
Void(s) encountered (Y/N) depth(s):	NONE				

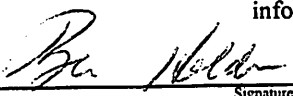
OPEN FLOW DATA

* Waterflood Producer

This well drilled directionally 78.4° NE a distance of 795'.

Producing formation	Gordon	Pay zone depth (ft)	3282'-3286'
			3328'-3332'
Gas: Initial open flow	* MCF/d	Oil: Initial open flow	* Bbl/d
Final open flow	* MCF/d	Final open flow	* Bbl/d
Time of open flow between initial and final tests		* Hours	
Static rock pressure	* psig (surface pressure)	after	* Hours
Second producing formation		Pay zone depth (ft)	
Gas: Initial open flow	MCF/d	Oil: Initial open flow	Bbl/d
Final open flow	MCF/d	Final open flow	Bbl/d
Time of open flow between initial and final tests		Hours	
Static rock pressure	psig (surface pressure)	after	Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

11/5/12
Date

Were core samples taken? No

Were cuttings caught during drilling? No

Were Y Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Treatment : Treated perfs 3282'-3286', 3290'-3293', 3306'-3314', 3328'-3332' w/ 2000 gals 15% HCL, 420 bbls cross linked gel, and 20,000# 20/40 sand.

Well Log : All depths are measured relative to KB (8' AGL).

Shale w/ sand streaks	0	-	956
Coal	956	-	966
Shale w/ sand streaks	966	-	1022
Sand	1022	-	1066
shale	1066	-	1313
sand	1313	-	1330
shale	1330	-	1352
sand	1352	-	1404
shale	1404	-	1490
sand	1490	-	1594
shale	1594	-	1696
sand	1696	-	1632
shale	1632	-	1792
sand	1792	-	1853
shale	1853	-	1950
sand	1950	-	1988
shale	1988	-	2066
sand	2066	-	2082
shale	2082	-	2180
sand	2180	-	2202
shale	2202	-	2206
sand	2206	-	2238
Big Lime	2238	-	2332
Big Injun	2332	-	2502
shale	2502	-	3244
Gordon stray	3244	-	3296
shale	3296	-	3306
Gordon	3306	-	3315
shale	3315	-	3326
sand	3326	-	3333
shale	3333	-	3515
TD	3515		

T.D. -Logger 3453 KB